

For July 26 and 27, 2006

TO: U.S. Department of the Interior
Natural Resource Damage Assessment and Restoration Advisory Committee

FROM: The Q3 Subcommittee

RE: **Analysis for Discussion/Report on Question 3**

Executive Summary:

The Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the Clean Water Act (CWA) authorize natural resource trustees to recover damages not only for the cost of restoring injured resources to the conditions that would have existed had the hazardous substance releases in question not occurred (their “baseline” condition), but also for the loss of natural resource services that otherwise would have been provided to the public by the resources pending the re-establishment of baseline. Under the existing CERCLA/CWA Natural Resource Damage Assessment and Restoration (NRDAR) Regulations promulgated by the Department of the Interior (DOI), damages for interim losses are equal to the economic value the public loses until the baseline condition is re-established. The existing regulations call this “compensable value” (*See* 43 CFR 11.83(c)).

CERCLA and the CWA require trustees to spend any compensable value recoveries to restore, replace, or acquire the equivalent of an injured natural resource. In 1990, the NRDAR Regulations under the Oil Pollution Act (OPA) introduced the concept of making clear that trustees identify the restoration actions they intend to take to address interim losses up-front – before a demand is presented to potentially responsible parties. Damages for interim loss are then computed based on the cost of those actions, rather than on the monetary value of the loss. This can result in lower over-all restoration costs when high-value, cost-effective projects are proposed to address interim losses.

Last year, DOI convened a NRDAR Federal Advisory Committee (NRDAR FACA Committee) to provide advice and recommendations on issues related to DOI’s authorities, responsibilities, and activities under the natural resource damage provisions of CERCLA and the CWA. One of the questions posed to the NRDAR FACA Committee was whether DOI should revise the CERCLA NRDAR Regulations to provide flexibility to compensate for interim losses through restoration actions that address those losses in lieu of the monetary value of the losses themselves -- as per the “restoration-based approach” outlined in the OPA NRDAR Regulations.

Subcommittee 3 was asked to provide analysis on this question to the Committee. After considering and discussing both the CERCLA and the OPA NRDAR Regulations, numerous peer reviewed publications, judicial decisions, presentations by consultants, practitioners, tribal representatives, and other materials which are made available as part of the record of the subcommittees deliberations – Subcommittee 3 believe that the current regulations provide a good framework for conducting natural resource damage assessments. Subcommittee 3 members also think that the full Committee should consider a recommendation to DOI to clarify the appropriateness of compensating for interim losses with restoration projects that can provide services equivalent to those that have been lost, rather than requiring the monetary value of the lost services as the measure of damages. All of the Subcommittee members agree that the flexibility to adopt a restoration-based approach on interim losses should not, however, modify the current CERCLA/CWA NRDAR Regulation’s focus on the concept of services (both human and ecological), baseline, causation and utilization of reliable assessment methodologies.

NRDAR FACA Committee Question #3:

Should DOI revise the CERCLA NRDAR Regulations to permit flexibility to allow for compensating for interim losses with restoration projects in lieu of monetary damages for the value of the loss?

If so, how should project- based interim loss claims be calculated?

NRDAR FACA Question #3 Subcommittee Members:

Alex Beehler (alternate - Larry Groner), John Carlucci, Pat Casano, Barry Hartman, Nancy King, Jon Mueller, and Steve Polasky.

(On June 5 and 6, the NRDAR FACA Question #3 Subcommittee met at the National Conservation Training Center in Sheperdstown, West Virginia to discuss and analyze Question #3. Shannon Work, a FACA Committee member representing tribal interests participated in these meetings. Dr. William Desvousges, an economist, consultant, and NRDAR practitioner also participated in these meetings, as did Dr. Bruce Peacock, an economist and NRDAR practitioner from the National Park Service.

Analysis:

Should DOI revise the CERCLA NRDAR Regulations to permit flexibility to allow for compensating for interim losses with restoration projects in lieu of monetary damages for the value of the loss?

Subcommittee 3 believe that the current regulations provide a good framework for conducting natural resource damage assessments. Subcommittee 3 members also think that the full Committee should consider a recommendation to DOI to clarify the appropriateness of compensating for interim losses with restoration projects that can provide services equivalent to those that have been lost, rather than requiring the monetary value of the lost services as the measure of damages

Primary Issues Considered:

1. What advantage is gained by using restoration actions to compensate for the interim loss of natural resource services rather than collecting the monetized economic value of those services as damages? What are the disadvantages to a restoration-based approach? What are the technical and cost considerations?

Advantage of Using Restoration Actions to Compensate for Interim Loss:

Advantages

- Better comports with CERCLA's overall restoration objectives.
- Allows flexibility to use simpler, cost-effective, and transparent methods in some cases.

- Easier to explain to the public and other interested stakeholders how restoration projects compensate for interim losses than do monetary recoveries
- Some restoration project-based analyses are easier to conduct and understand
- Example: Easier to determine and explain enhanced fishing access as compensation for lost recreational fishing days than a monetary recovery
- Can encourage settlements by providing opportunities for more creative and/or cost effective restoration.
- Allows for the integration of CERCLA and OPA concepts of interim loss damages.

Disadvantages

- Many potentially responsible parties believe that some restoration-based valuation methodologies – such as Habitat Equivalency Analysis (HEA), Resource Equivalency Analysis (REA), and Conjoint Analysis -- are not as reliable as survey-based methodologies that measure and value the public's actual preferences regarding resource use and enjoyment.
- Project-based approaches may not be appropriate to all situations. Accordingly, the option to quantify the monetary value of public losses should be retained.

Technical and Cost Considerations

- Monetary and project-based methodologies can have various technical and reliability issues that need to be considered. The existing CERCLA NRDAR Regulations list specific methodologies that trustees may use when measuring the economic value of interim losses – including travel cost, hedonic pricing, and contingent valuation. As outlined below, we believe that the Committee should consider a recommendation that DOI not require or bar the use of any particular methodology – whether monetary loss value or project-based – and instead provide general technical and reliability factors to consider when selecting both a methodology and specific inputs for assessing interim losses. Illustrative examples of project-based and monetary loss value methodologies currently in use could, however, be helpful.
- Increased flexibility to select cost-effective methodologies or compensation options within the structured framework of the regulations could result in potential cost savings in some cases.

2. If the CERCLA NRD Regulations are revised to permit project-based scaling for interim losses, is it helpful to include a hierarchy of project-based interim loss

scaling (resource to resource, service to service, value to value, etc.) as provided in the OPA NRD Regulations?

A rigid hierarchy of methodologies, as per the OPA NRDAR Regulations, can sometimes undermine the benefits of a flexible approach to selecting methodologies. Additionally, a hierarchy of methodologies may not reflect the nature of the interim losses experienced at a site. For example, using a “resource to resource” methodology that compensates for lost recreational fishing opportunities with increased fish populations (resources), but does not consider human access to those populations may not be appropriate in some cases. A set of factors to consider, or guidelines for selecting methodologies can help strike a balance between a mandatory hierarchy of methodologies and unfocused discretion.

3. If the CERCLA NRD Regulations are revised to permit project-based compensation for interim losses, should they explicitly provide for opting out of project-based scaling, and utilizing the dollar value of the lost services (i.e., the current CERCLA Reg. valuation) as the measure of damages, as the OPA NRD Regulations provide? Should criteria for opting out be specified, or should there be maximum flexibility?

As discussed above, maximum flexibility is desirable. Accordingly, as per the OPA NRDAR Regulations, trustees and potentially responsible parties should be able to propose the utilization of alternative methodologies – including project or economic value loss based – when appropriate.

Secondary Issues:

1. Should interim losses in the CERCLA NRD Regulations remain explicitly discretionary, or should they be treated as part of a unitary claim, as in the OPA NRD Regulations?

We believe there is no compelling reason to alter the explicitly discretionary nature of interim loss claims as set forth in the current CERCLA NRDAR Regulations. This is consistent with CERCLA’s emphasis on restoration as the central measure of damages, and can help to encourage settlement of claims in difficult cases.

2. Can the CERCLA NRD Regulation provide any useful guidance on the relationship between the measure of damages specified in the regulations and the measure of interim loss damages in settlement and/or cooperative assessment contexts?

Project-based natural resource damage claims can support cooperative assessments and negotiated settlements. Early scoping of feasible restoration opportunities can be particularly helpful. The Committee should consider a recommendation to DOI to provide guidance on early, public scoping of natural resource damage claims – including identification of injured resources, confirmation of exposure to hazardous substances,

identification and estimation of service losses (both human and ecological) relative to baseline, and identification of feasible restoration alternatives. Such guidance could help ensure that trustees conduct studies focused on restoration, and not just damages. This preliminary scoping effort could include development of a conceptual site plan. This document would not be considered a cost-estimating document, to avoid possible Security and Exchange Commission issues that may arise.

3. Is it appropriate to have consistent nomenclature and definitions of categories of restoration and damages (e.g., baseline vs. primary restoration, compensable value vs. compensatory restoration, etc.) in the CERCLA and OPA NRD Regulations?

Clarity is more important than consistency of nomenclature. .

If so, how should project-based interim loss compensation claims be calculated?

The current CERCLA NRDAR Regulations authorize trustees to recover the "compensable value" of lost natural resource services pending restoration. "Compensable value" is "the amount of money required to compensate the public for the loss in services provided by the resource." 40 CFR §11.83(c)(1). Some members of the Subcommittee believe that this definition encompasses the cost of projects that will provide equivalent services to those that have been lost. Other provisions of the current regulation – which provide that compensable value is measured by consumer surplus and the public's "willingness to pay" – suggest that the monetary value of the loss is the exclusive measure of compensable value. Accordingly, some Subcommittee members think the Committee should consider a recommendation to DOI to clarify trustees' ability to use the cost of restoration actions, in lieu of the value of service losses, to measure interim loss damages. Restoration actions addressing human and/or ecological service losses should be eligible for consideration. Additionally, while it may be helpful to mention certain restoration-action scaling methodologies for illustrative purposes –such as random utility models, habitat equivalency analysis, and conjoint analysis –the Subcommittee members believe that believe the CERCLA NRDAR Regulation should not specifically sanction or bar the use of any particular methodology, but should instead provide factors to determine the utility and reliability of both methodologies and specific data inputs to those methodologies.

Primary Issues Considered:

1. Should interim loss claims value only lost services to humans, as the CERCLA NRD Regulation currently provides, or should it also calculate the value of interim ecological service (or "environment") losses, without a requirement for a specific showing of a public nexus, as the OPA NRD rule provides.

The importance of natural resource services is not limited to human services. Subcommittee members believe Ecological service losses may provide a valid basis for determining interim loss compensation. However, some subcommittee members believe

that there is no generally accepted method for valuing a service provided by a resource to another resource, and that such valuation is unnecessary, since baseline restoration is intended to restore the injured resources and the services that they provide to other resources.

2. Should the CERCLA NRD Regulations specify suggested categories of interim losses for calculation?

DOI should consider developing guidance on the types of service losses likely to arise from, and reasonable to consider given, a particular type of resource injury.

3. How reliable are available methodologies for valuing habitat or ecosystem service losses? Should the CERCLA NRD Regulations specifically identify certain methodologies (such as Habitat or Resource Equivalency Analysis, Conjoint Analysis, etc.) as “best available procedures” for calculating interim loss damages? More generally, should the regulation specify criteria for evaluating methodologies to allow for the development of new assessment tools?

Some Subcommittee members are convinced that “revealed preference” methods, which use data on how people actually use and enjoy natural resources, are the most reliable methods for determining compensable values. These subcommittee members think that “stated preference” methods, such as Conjoint Analysis and Contingent Valuation are not as reliable for a number of reasons, including the fact that they utilize hypothetical survey responses. Habitat and Resource Equivalency Analysis is neither a “revealed preference” or “stated preference” method, but attempts to estimate ecological service losses and compare them to service gains from restoration projects, without necessarily assigning a dollar value. HEA requires a proper metric for scaling service losses and gains; clearly articulated baseline conditions, and replacement resources that provide services of a type, quality, and quantity that are comparable to those lost. In addition, HEA does not consider the availability of substitute resources, which is critical to the accurate assessment of the value of interim losses. Given such issues, the Subcommittee agreed that DOI should not specifically sanction or bar the use of any particular methodology, but should instead provide factors to determine the utility and reliability of both methodologies and specific data inputs to those methodologies.

I. Illustrative Methodologies

- A. Project-Based: Determines interim loss damages as the cost to implement restoration projects that provide services equivalent to those that have been lost
HEA/REA
Random Utility Model
Conjoint Analysis
- B. Monetary-Based: Determines interim loss damages as the monetary value of lost services
Random Utility Model

Conjoint Analysis
Hedonic Pricing
Benefits Transfer
Factor Income

2. Suggested Factors to Consider for Interim Loss Determinations

- A. Methodology Reliability:
Verifiable, Testable, and Refutable
Accepted by Relevant Scientific Community
Subject to Peer Review
Standards Controlling Use of Techniques
Discernable Error Rate

The current Type B rule allows the use of any reliable, cost-effective methodology.
Provide for alternative, appropriate, reliable methods.

B. Inputs

Must either stipulate or establish each element of the following.

All Methods

Valid service metrics that accurately identify service losses
Appropriate data quality
Baseline condition identification
Availability of appropriate substitute resources

Project-Based Methods

Comparability of type, quality, and quantity of services lost and gained
Proportionality of Unit Restoration Cost to Unit Resource Value

4. Is it appropriate to scale the value of interim loss projects that provide for additional natural resource services to the public (such as boat ramps or hiking trails) but do not directly restore, replace, or rehabilitate natural resources? Does CERCLA permit this type of compensation for interim losses?

CERCLA's restoration focus requires that all recoveries be used to restore, replace or acquire the equivalent of injured natural resources. CERCLA does not limit recoveries, however, to the cost of restoration – which allows for the collection of damages to compensate for interim losses. (CERCLA sec. 107(f)(1). As practice under the OPA NRDAR Regulations has shown, sometimes projects that provide for human access, use, and enjoyment of resources more directly address certain categories of interim losses. Accordingly, given the similarity in requirements for the use of damages under both the CERCLA and the OPA statute (*See, e.g.,* CERCLA sec. 107(f)(1) and OPA sec. 1006(f)), we believe that the Committee should recommend that DOI explicitly provide for the

consideration of interim loss restoration actions that provide natural resource services to the public through access, use, and enjoyment opportunities, in addition to projects that address resource units, populations, or habitats. Factors to consider in determining the appropriateness of such projects can include cost, the nexus to the loss, the nature of the benefits provided, and, most importantly, potential resource impacts of the project.

Secondary Issues:

1. What is the appropriate point in time for the initiation of interim loss calculations – From the date of the enactment of CERCLA? From the date of the release, if later, until restoration or replacement? From the date Trustees notify PRPs of their intent to undertake and assessment, etc.? Should the rule discuss flexible approaches to setting this time period?

As previously set forth, we believe the CERCLA NRDAR Regulations should provide the maximum discretion to trustees on whether to seek interim loss damages at all, or in part. However, it might be helpful to clarify that interim loss damages cannot be calculated for losses occurring *before* the date of the enactment of CERCLA. [

2. How specific and/or feasible do project-based interim losses compensation claims need. Are abstract units of habitat, such as “acre-years” sufficient, or should projects for scaling employ specific or generic project descriptions.

Projects to provide the equivalent of the interim lost services should be feasible and may be categorically described by service loss type and/or location. Restoration feasibility should be addressed early on in the process, in the preliminary scoping and assessment work plan.

Conclusion:

Our review and analysis of the CERCLA and OPA statutes and regulations, relevant literature, and more than twenty years of NRDAR practice, leads us to the conclusion that providing the flexibility to utilize restoration actions to address interim losses could encourage cooperative assessment and negotiated settlements that focus on restoration of public resources, rather than on monetary damages for harm. The Subcommittee members recommend that DOI clarify and encourage this flexibility.

References:

- CERCLA – 42 USC 9601, *et seq.*
- OPA – 33 USC 2701, *et seq.*
- CERCLA NRDAR Regulations – 43 CFR Part 11
- OPA NRDAR Regulations – 15 CFR Part 990
- *Ohio v. DOI*, 880 F2d, 432 (1989)
- *Kennecott v. DOI*, 88 F3rd 1191 (1996)
- *The Use of Habitat Equivalency Analysis in Natural Resource Damage Assessments* (Dunford, Ginn, and Desvousges, 2003)
- *Assessing Natural Resource Damages Using Environmental Annuities* (Unsworth and Bishop, 1993)
- *Exploring Welfare Implications of Resource Equivalency Analysis in Natural Resource Damage Assessments* (Zafonte and Hampton, 2006)
- *The Potential Role of Conjoint Analysis in Natural Resource Damage Assessments* (Matthews, Johnson, Dunford, and Desvousges)
- *Scaling Environmental Restoration to Offset Injury Using Habitat Equivalency Analysis* (Allen, Chapman, and Lane, 2005)
- *Valuing the Environment: Courts Struggle with Natural Resource Damages* (Thompson, 2002)
- *Integrating Biology and Economics in Seagrass Restoration: How Much is Enough and Why* (Fonseca, Julius, and Kenworthy, 2000)
- *Quantifying Natural Resource Injuries and Ecological Service Reductions: Challenges and Opportunities* (Barnhouse and Stahl, 2002)
- *Response to DOI's Questions to FACA Subcommittee #3* (Desvousges and Michaels, 2006)
- *Twenty Years of Damage Assessments: What Have We Learned? Where Should DOI Go From Here?* (Power Point Presentation, Desvousges, 2006)
- *Interim Loss Damages: Project Based Approaches vs. Monetary Approaches* (Power Point Presentation, Peacock, 2006)